Office of Environmental Health

Annual Report 2005

CHILDREN'S ENVIRONMENTAL HEALTH

"Let us put our minds together and see what life we can make for our children."

-Sitting Bull

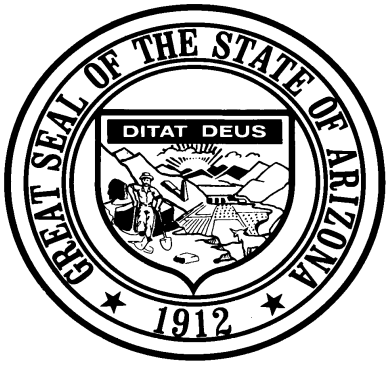
Arizona Department of Health Services

Arizona Department of Health Services

Bureau of Epidemiology and Disease Control

Office of Environmental Health

June 2006



Janet Napolitano, Governor
State of Arizona

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INTRODUCTION

Children spend more time outdoors and breathe more air per pound of body weight than adults. They eat and drink more in proportion to their body weight. Therefore they are at greater risk of environmental exposures than adults. The Arizona Department of Health Services (ADHS), Office of Environmental Health, Children's Environmental Health Program is dedicated to improving environmental health where Arizona's children live, learn and play.

The ADHS Children's Environmental Health Program consists of the Childhood Lead Poisoning Prevention Program, the SunWise School program and actively works with the Children's Environmental Health Project at the Arizona Department of Environmental Quality, the Integrated Pest Management Coalition, the Arizona Asthma Coalition and continues involvement with the U.S. Environmental Protection Agency's Border 2012 program as well as the Arizona Department of Health Services, Office of Border Health, all with the goal of improving the environment for our children.

The Office of Environmental Health conducted an assessment of the environmental health factors that most adversely affect Arizona's children. This report was presented to interested organizations to prioritize and further develop specific objectives and strategies to reduce environmental health hazards to children.

The table below shows the environmental exposures that significantly affect the health of Arizona's children.

Ambient Air Pollutants and Asthma
Allergens and Asthma
Secondhand Tobacco Smoke and Asthma
Coccidioidmycosis (Valley Fever)
Lead Poisoning
Sun Exposure
Methylmercury in Fish
Pesticide Exposure
Noise

The full report can be found at http://www.azdhs.gov/phs/oeh/pdf/gov_chldrn_hlth_rpt.pdf.

INTRODUCTION

In 2005, the Children's Environmental Health Program received two grants from the U.S. Environmental Protection Agency (EPA) Region IX and the U.S. EPA Border 2012 program. Both grants address childhood lead poisoning. The U.S. EPA Region IX grant provided capillary blood lead screening for children that are under insured, uninsured or in areas of the state where blood lead screening may not be performed. The U.S. EPA Border 2012 grant provided for an education campaign on the dangers of lead containing pottery and lead containing folk remedies. The target area for these activities was the Douglas/Agua Prieta border community in Cochise County.

The Children's Environmental Health Workgroup, with staff from both the Arizona Department of Health Services and the Arizona Department of Environmental Quality, was created to work in partnership to address issues affecting children's environmental health. This workgroup meets on a monthly basis to collaborate on grant projects, data sharing, and addressing environmental issues that affect Arizona's children.

In addition, a sun safety law was passed by the Arizona Legislature and signed into law by Governor Janet Napalitano in May of 2005. Public schools are now required to teach sun safety in kindergarten through eighth grades. The SunWise Program is providing guidance and assistance to Arizona's public schools with the implementation of this important law.

"Children are our most valuable natural resource."
–Herbert Hoover

CHILDHOOD LEAD POISONING PREVENTION

Childhood lead poisoning is a significant environmental health problem that continues to affect Arizona's children. The Center for Disease Control and Prevention (CDC) defines elevated blood lead levels for children as ≥10 micrograms/deciliter (µg/dL) of blood.[1] Lead poisoning adversely affects nearly all organ systems of the body and is especially harmful to the developing brain and nervous system. Studies have shown that a child's IQ will drop one to three points for every increase of 10 µg/dL in the child's blood lead level. Though most children do not show symptoms of lead poisoning some symptoms may include headaches, stomachaches, lack of appetite, fatigue, irritability and vomiting. At very high blood lead levels (≥ 70 µg/dL), children can suffer seizures, coma and even death.[2] Once the lead exposure is reduced further harmful effects can be stopped, it is not yet know if the damage already caused can be reversed.

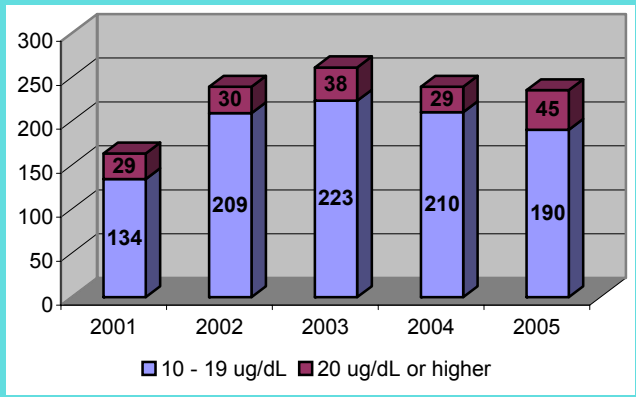
Children under the age of six years are particularly susceptible to lead poisoning. Ingestion of lead through natural hand-to-mouth behavior is the primary exposure pathway for children. It is only through a blood test that lead poisoning is detected.

The CDC reported an overall decline of prevalence of elevated blood lead levels for the U.S. population. The latest survey for 1999-2002 revealed a 0.7% prevalence of elevated blood lead levels indicating approximately 310, 000 thousand children aged 1-5 years suffer from lead poisoning. The previous 1999-2000 survey indicated a prevalence of 2.2% or 434,000 children aged 1-5 years had elevated blood lead levels.[3]

The CDC requires that all grantees work towards the Healthy People 2010 Objective 8-11: elimination of elevated blood lead levels.[4] The CDC in partnership with the U.S. Department of Housing & Urban Development (HUD) and the U.S. Environmental Protection Agency (EPA) is working to achieve this goal.

The main responsibilities of the Arizona Childhood Lead Poisoning Prevention Program is to conduct surveillance activities, provide case follow-up including environmental investigations and perform education and outreach activities.

Number of Children with Elevated Blood Lead Levels Arizona 2001-2005

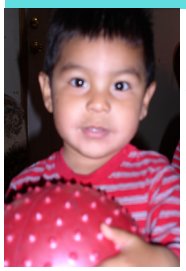


Surveillance

The Arizona Lead Poisoning Registry maintains a surveillance system for recording all blood lead test results. Physicians are required to report elevated blood lead levels of ≥10µg/dL for children and laboratories are required to report all blood lead test results.[5] Laboratories and health care providers reported 235 children with lead poisoning in 2005. The number of childhood lead poisoning cases reported from 2001 to 2005 is displayed at right.

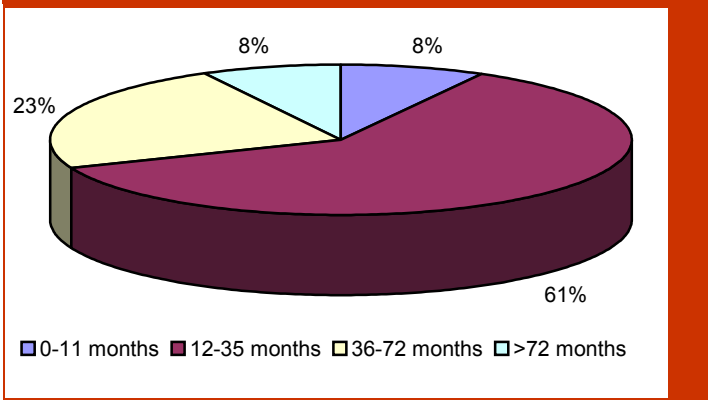
[1]Centers for Disease Control and Prevention. Preventing Lead Poisoning in Young Children: A Statement by the Centers for Disease Control– October 1991. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.
[2]Agency for Toxic Substances and Disease Registry (ATSDR). 1999. Toxicological Profile for lead. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.
[3]Centers for Disease Control and Prevention. [Blood Lead Levels—United States, 1999-2002]. MMWR 2005;54:513-516.
[4]U.S. Department of Health and Human Services. Healthy People 2010 (conference ed, in 2 vols). Washington, DC: US Department of Health and Human Services, 2000. Available at URL: http://www.healthypeople.gov.
[5]Arizona Administrative Code R9-4-301. Title 9. Health Services. Chapter 4. Department of Health Services NonCommunicable Diseases. Article 3. Blood Lead Levels.

CHILDHOOD LEAD POISONING PREVENTION



Children under the age of six years are particularly susceptible to lead poisoning. Ingestion of lead through natural hand-to-mouth behavior is the primary exposure pathway for children. In 2005 the majority of children reported with lead poisoning were ages 12 to 35 months.

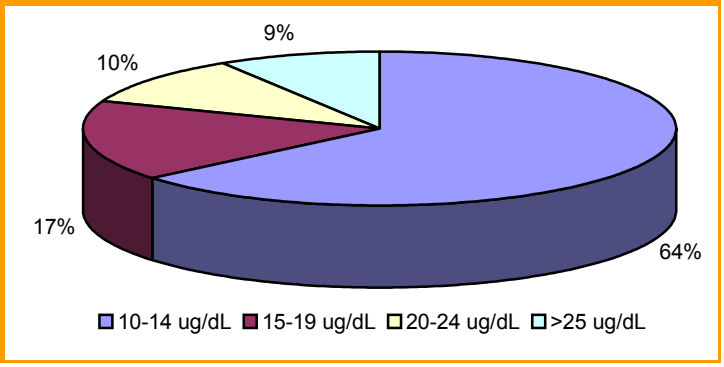
Ages of Children with Elevated Blood Lead Levels Arizona 2005

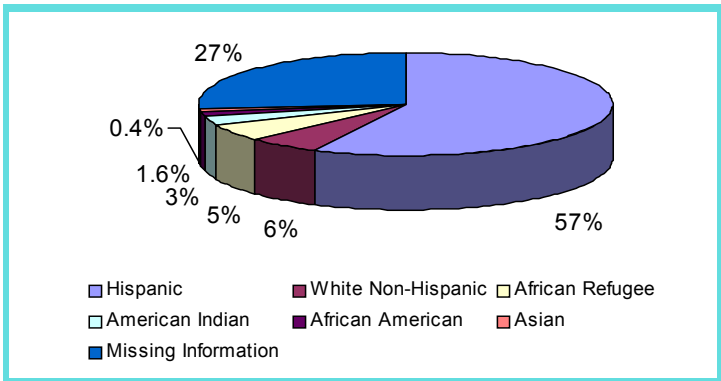


The Arizona Health Care Cost Containment System (AHCCCS) Early and Periodic Screening, Diagnosis and Testing (EPSDT) Service Standards requires providers to routinely perform a blood lead test for children at 12 months and at 24 months of age and at 36-72 months of age if not previously performed.[6]

Eighty-one percent (81%) of the 2005 childhood cases were in the mild ranges of lead poisoning (10 to 19µg/dL). The remaining nineteen percent (19%) of cases were in the moderate to severe ranges of lead poisoning (≥20µg/dL).

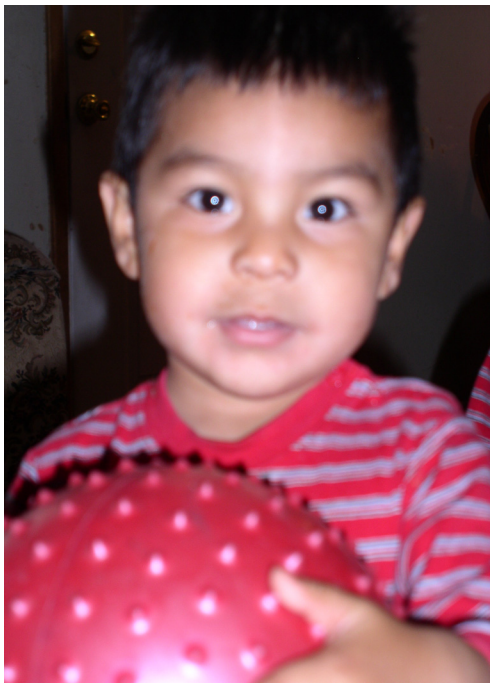
Distribution of Elevated Blood Lead Levels of Children Arizona 2005





Race/Ethnicity of Children with Elevated Blood Lead Levels Arizona 2005

Children in minority populations, children from low income families and children who live in older housing remain at higher risk for lead poisoning.[3] Fifty-seven percent (57%) of lead poisoning cases in Arizona were Hispanic children.



[6]Arizona Health Care Cost Containment System. AHCCCS Medical Policy Manual. July 2005. Available at URL: http://www.azahcccs.gov/Regulations/OSPpolicy.

CHILDHOOD LEAD POISONING PREVENTION

The Arizona Childhood Lead Poisoning Prevention Program provides case follow-up that meets or exceeds the Centers for Disease Control and Prevention 2002 guidelines "Managing Elevated Blood Lead Levels Among Young Children: Recommendations from the Advisory Committee on Childhood Lead Poisoning Prevention."

Lead poisoning cases 10 to 19 µg/dL

Parents or guardians of children with elevated blood lead levels between 10 to 19 µg/dL are mailed lead education materials. Reminder letters are sent to the parents/guardians encouraging follow-up blood testing until blood lead levels are normal.

Case Management

Lead poisoning cases persistently 15 to 19 µg/dL

Parents or guardians of children receiving a follow up blood lead test in this range after 3 months of the initial test are contacted by phone and provided lead education and offered an environmental investigation of their home or apartment. Reminder phone calls are made to the parents/guardians to encourage follow-up blood testing until blood lead levels are normal. The parents/guardians and physician are notified of the environmental investigation results and provided recommendations to reduce and prevent further lead exposure.

Lead poisoning cases ≥20 µg/dL

Parents or guardians are contacted by phone and provided lead education and encouraged to schedule an environmental investigation of their home or apartment. Reminder phone calls are made to the parents/guardians to encourage follow-up blood testing until blood lead levels are normal. The parents/guardians and physician are notified of the environmental investigation results and provided recommendations to reduce and prevent further lead exposure.

AHCCCS health plans assist the program with case follow-up. The program provides follow-up information to the case's physician that is essential to clinical management. This information includes source identification and prevention recommendations.

CHILDHOOD LEAD POISONING PREVENTION

Environmental Investigations

The Arizona Childhood Lead Poisoning Prevention Program performs environmental investigations for cases that are moderate to high in severity, ≥20µg/dL, for persistent levels of 15 to 19µg/dL and by request from physicians at lower levels. An environmental investigation consist of an in-home interview, environmental sampling to identify lead sources, and specific intervention recommendations for the family. Paint, soil, dust, and water samples are routinely taken for laboratory analysis. Potential lead exposures such as imported pottery, toys, crayons/chalk and window blinds are also sampled. Sources of lead exposure found in Arizona are lead based paint, lead contaminated dust and soil, lead containing folk remedies and pottery, lead containing jewelry, crayons and chalk and plastic or vinyl window blinds.

Parents/guardians are provided with recommendations to further prevent and reduce lead exposures based upon findings of the environmental investigation. Results are also reported to the case's physician.

Children living within the city of Phoenix and within Cochise County are referred to the City of Phoenix Lead Hazard Control Program and the Housing Authority of Cochise County Lead Hazard Control for remediation and abatement services.

Lead exposures found in Arizona include: lead-based paint, lead contaminated soil and dust, pottery, metallic jewelry and chalk. These sources may be identified during environmental investigations for lead poisoned children.

CHILDHOOD LEAD POISONING PREVENTION

The U.S. Consumer Product Safety Commission (CPSC) issued a new policy addressing lead in children's metal jewelry. The policy gives guidance to manufactures, importers and retailers on steps to minimize health risks for children from lead. The policy states that metallic jewelry with lead content of greater than 600 parts per million (ppm) will trigger further action. In 2004 the CPSC recalled more that 150 million pieces of metallic jewelry due to high lead content.

Education and Outreach

Lead exposure prevention and education is essential to ensuring declining blood lead levels in Arizona's children. The Arizona Department of Health Services issued news releases to warn against consuming candy containing lead. Dulmex Rollito de Tamarindo and Vero Vagabundo were found to contain high levels of lead according to testing performed by the California Department of Health Services. Many newspaper, television news, and radio outlets ran the information. Media coverage was provided in both English and Spanish.

The Arizona Childhood Lead Poisoning Prevention Program provided educational in-services for local programs such as the Women, Infants and Children's (WIC) Nutrition Supplement Program, the Environmental Information Association and continues to collaborate with local organizations and agencies to promote prevention education and provide additional services to families of lead poisoned children.

Partnerships

The City of Phoenix Lead Hazard Control Program has been a long time partner and greatly enhances the services provided by the Arizona Childhood Lead Poisoning Prevention Program. The City of Phoenix Lead Hazard Control program takes referrals for homes which have been found to contain lead based paint hazards. Five lead poisoning cases referred to the City of Phoenix Lead Hazard Control program qualified for lead remediation and abatement this year.

Continued partnership with the Housing Authority of Cochise County Lead Hazard Control Program resulted in five homes where children with lead poisoning resided qualifying for remediation and abatement services. The program completed a total of 37 lead hazard control projects in 2005. The Housing Authority of Cochise County Lead Hazard Control Program provides a valuable service to one of the highest risk areas for lead poisoning due to older housing.

The Arizona Childhood Lead Poisoning Prevention program continued to work with Child-Parent Centers, INC., the Head Start and Early Head Start Program grantee for southeastern Arizona, to implement a lead screening and education program to increase the number of enrolled children screened for lead poisoning and provide lead education to families.

Partnerships with various types of agencies and organizations at the Federal, State, and local levels is essential to strengthen childhood lead poisoning prevention efforts and to achieve the national goal of elimination of childhood lead poisoning by the year 2010 in Arizona.

SUNWISE SCHOOL PROGRAM

The main goal of the SunWise School Program is to prevent skin cancer and reduce its impact on Arizonans through childhood education. Arizona is No. 2 in the world in skin cancer incidence rates and one in five Arizonans are likely to develop skin cancer in their lifetime.[7] The majority of a person's lifetime exposure to the sun occurs before the age of 18. Exposure to solar and artificial ultraviolet radiation appears to be the most important environmental factor in the development of skin cancer, including the deadliest form melanoma. Eighty percent of a person's lifetime exposure occurs before the age of 18. Blistering sunburns in childhood significantly increases the risk of melanoma skin cancer later in life.[8]

Skin cancer is the most preventable cancer and accounts for half of all new cancers. Arizona children spend about six hours a day at school, with the majority of their recesses occurring outdoors during peak ultraviolet times (10 a.m. to 4 p.m.). Initiating preventative behaviors at an early age can play a vital role in preventing skin cancer– both on school grounds and when children are at home.[9] Strategies to reduce skin cancer in Arizona are a priority identified by the Governor's Children's Environmental Health Project Initiative, the Health Arizona 2010 Strategic Plan and the Arizona Comprehensive Cancer Control Plan.

In February 2003, the Arizona Department of Health Services (ADHS) implemented the SunWise school program to educate Arizona school children to protect themselves from overexposure to the sun. In May of 2005, Governor Janet Napalitano signed into law, a sun safety bill (Arizona Revised Statutes 15-718) requiring public schools to teach sun safety education in kindergarten through eighth grade. Upon passage of the new state sun safety education mandate, SunWise staff provided each of the state's 1800 kindergarten through eighth grade schools with a free SunWise activity toolkit and accompanying ADHS sun safety literature and mandate information.

In 2005, SunWise staff personally met with more than 40,000 students and 400 teachers statewide through school district workshops and school assemblies. In addition, SunWise staff attended 20 health fairs and another 12 organizations received SunWise materials to provide to attendees SunWise information.

SunWise Toolkit

Initiating preventive behaviors at an early age can play a vital role in preventing skin cancer-both on school grounds and when children are at home.

[7]Harris, Robin B. & Alberts, David S. (2004) Strategies for Skin Cancer Prevention. International Journal of Dermatology 43(4), 243-251. doi:10.1111/j.1365-4632.2004.01966.x
[8]American Academy of Pediatrics. Committee on Environmental Health. Ultraviolet Light: A Hazard to Children. Pediatrics Vol. 104. No. 2. August 1999.
[9]Centers for Disease Control and Prevention. [Guidelines for School Programs to Prevent Skin Cancer]. MMWR 2002; 51(RR04);1-16.

SUNWISE SCHOOL PROGRAM

The Arizona Department of Health Services sponsors a poster-drawing contest for school children statewide to increase awareness about sun-safety. The third annual sun safety poster drawing contest was held in the spring of 2005. More than 2000 students participated. Joy-Ann Pearce, pictured below, created the poster. Joy-Ann is a 6th grade student of Copper Ridge Middle School, Scottsdale, AZ. The winning picture was reproduced into professional posters and distributed state-wide to pediatric and dermatologist offices as well as schools. The 2005 winning poster is displayed below.

The Arizona SunWise Program is a model for other states working to educate and protect children from melanoma and other skin cancers.

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